in the Bureau of Labor — that of recording the actual and relative prices of a long list of commodities, from which investigators may make such selections and combinations as their ends require.

WESLEY C. MITCHELL.

UNIVERSITY OF CALIFORNIA.

THE SOMERS SYSTEM OF REALTY VALUATION

THE quadrennial [1] revaluation of real estate for taxation, which has been in progress in Ohio during the present year, has revived the old problems relative to proper methods of taxation, and has given rise to new ones. The pressure of the present burden of taxation [2] has led to a general demand for reforms in the existing system of valuation, under which gross inequalities have entered into the assessment of real estate, both as between different localities and as between different parcels of real estate in the same locality.[3] The popular demand everywhere has been for an enforcement of the constitutional and legal provisions requiring all property to be assessed at its fair cash value. Appraisal Boards throughout the state have been stimulated by this public outcry to greater efforts in the pursuit of their duties, and in the use of new methods of determining true valuations. One of the most elaborate of these methods is that which has been adopted in Cleveland, Ohio, the "Somers System of Realty Valuation." [4] Its essential features will here be described briefly.

[1] Formerly decennial. Beginning with 1910, the appraisement is to be quadrennial. See Acts of the Ohio Legislature, Session of 1909, p. 81.

[2] The Cleveland tax rate in 1909 was $3.37 per $100.

[3] See Report of the Ohio Tax Commission, 1908.

[4] So-called from its inventor, Mr. W A. Somers, of St. Paul, Minn. The system is the product of many years of experience in assessors' offices and of considerable study of the whole subject of real estate values. It has been used successfully in St. Paul and in Ramsey County, Minn, for both city and rural valuations, and has been installed in Columbus, Ohio, for the present appraisement of real estate Parts of the system were used, under Mr. Somers' direction, by the New York Appraisal Board of 1909, but the fundamental features of the plan were not there employed.

The Somers system is based upon the principle that city real estate values are community values. Land is worth whatever the community thinks it is worth, barring the exceptional cases in which individuals may place unusual values upon particular sites for special purposes. One of the most prolific sources of inequality and disaffection in the assessment of real estate hitherto has been the failure to recognize this truth, and the persistent substitution of the shifting and arbitrary judgment of a Board of Assessors for the census of public opinion. The problem of proper valuation consists in approximating as closely as possible to the values which the community places upon its land.

In order to reach this approximation, units and factors must be used in the terms of which the community most generally thinks and deals, and by means of which it is most capable of forming correct judgments of values. To value individual city lots by this method is obviously out of the question, since it would be impossible to obtain a consensus of public opinion, sufficiently broad to be representative, regarding the value of each lot in the city. Individual lot values must be calculated, according to rules formulated by experience, from such units as to the value of which intelligent and representative public opinion does exist.

The best basis for the expression of "community opinion" regarding land values is thought to be the streets of the city, or more properly, a definite and uniform unit of land on each street. To quote Mr. Somers — " There always exists in cities a Community Opinion that a certain street is the best for business, and a consequent idea that land fronting thereon is the most valuable. From this most valuable street other streets of less value will be compared, a well-defined opinion being present that the property on the less valuable street is less valuable just in proportion as the street is less valuable, and the comparison will reach out from the centre or best portion and embrace the entire city. . . . .

" To make use of this Community Opinion of the relative

worth of the streets, it is necessary to find some common term that can be used to express their comparative value as a unit in all parts of the city. The value of one foot in width for some fixed depth is the best measure for the purpose, because of its common use and its applicability both to gauge comparative value of streets and real value of tracts." [1]

The Somers unit is a strip of land one foot wide and one hundred feet deep, free from corner influence, *i. e.* uninfluenced by the higher values due to the proximity to a corner. Once the community has agreed upon the value of this unit for each street, the valuation of individual lots becomes simply a matter of the application, by a clerical force, of certain fixed rules of experience which have been developed by the inventor.

The valuation of the units is arrived at in the following manner. The City Appraisal Board of Cleveland estimates tentatively the unit values of the various streets, beginning at the Public Square and working out in every direction to the corporation limits.[2] By means of maps and a campaign of publicity in the city newspapers, these tentative valuations are scattered broadcast, and the community is invited to discuss them. At a series of public meetings of the Board, section after section of the city is covered, many parts being gone over several times, until all interested persons are given ample opportunity to appear before the Board and submit evidence in favor of changing the tentative unit values. After being thoroly debated by the public in this manner, the unit values finally agreed to by the majority are regarded as representing the consensus of opinion. These unit values are confirmed by the Board, and are not open to further discussion.

[1] The Valuation of Real Estate for the Purpose of Taxation, by W. A Somers, St. Paul, Minn, 1901, p. 19

[2] The Board adopted the rule that property should be valued on the basis of the best use of it, *i. e.* a lot in the business section which was being used for residence purposes should be valued as business property. The owner, and not the public, should bear the loss if the property were put to any other than its best use. Another rule followed was that thorofares, which were defined as the main channels of trade and travel, should be valued uniformly higher than the minor streets.

With these unit values agreed upon, the next step is the valuation of individual lots. Numerous devices and rules of experience have been prepared by the inventor to facilitate this work, which is done by clerks who never see the lots they are valuing. The most important of these aids are the following.

(1) The curve of values: a scale showing the percentage of the unit value for a one-foot strip of any depth. It is made necessary by the fact that lots are of varying depths. The following selected figures show how the percentage of the unit value is used for lots from 1 foot to 700 feet deep.

TABLE I

CURVE OF VALUE[1]

(Arranged and Printed for the City of Cleveland)

Depth of Lot	Percent of unit value	Depth of Lot	Percent of unit value
1	3.10	80	90.90
10	25.00	90	95.60
20	41.00	100	100.00
30	54.00	150	115.00
40	64.00	200	122.00
50	72.50	250	126.05
60	79.50	500	137.85
70	85.60	700	142.35

(2) Another problem calling for the application of special devices is the valuation of corner lots,[2] deriving their advantages from the fact of frontage on two streets, and more valuable than ordinary lots of the same size. The amount by which the corner lot is more valuable depends on the unit values of the intersecting streets. The minimum excess over an ordinary lot will occur if one street is a *cul de sac* giving access simply to light and air and allowing

[1] In the full table as officially printed a percentage is given for each foot of depth from 1 to 700. The figures here reproduced suffice to indicate the nature of the progression.

Corner influence is not calculated in Cleveland if the combined unit values do not exceed $100. This excludes much of the residence territory.

display windows, but with no assigned unit value. The maximum excess of value over an inside lot of equal size will be created by units of equal value on the intersecting streets. The influence of the corner is assumed to extend 100 feet in each direction from the corner, and the relative excess must be spread equitably over this area of 100 by 100 feet. For the purpose of doing this, the zone of corner influence is divided into 100 squares, each 10 by 10 feet. These squares are numbered, always in the same manner with reference to the better street, and the value of each square has been calculated for a series of combinations of intersecting unit values, by assuming the unit value on one street as constant at $1,000, and varying the other unit value, by $10 intervals, from $10 to $1,000. Unit values above $1,000 are always regarded as multiples of $1,000; thus, unit values of $9,000 and $4,500 are reduced to $1,000 and $500, etc.

In the actual process of valuing individual lots the clerks are provided with printed slips bearing the numbered squares, and a set of the tables giving the values of the squares under all the above conditions of varying unit values.[1] A lot of any size is easily valued by marking off on a slip the squares which lie within it, and adding the values of these squares. The following table reproduces the squares as they are numbered, and also includes the value in dollars of each square when the unit values on the intersecting streets are $1,000 and $250 respectively.

[1] Instead of the printed slips, transparent scales having the squares laid off as on the slips, are often used. By laying one of these scales over a blue print of the block, the squares included within each lot can be written down at once.

TABLE II

10	*20*	*30*	*40*	*50*	*60*	*70*	*80*	*90*	*100*
$899	$715	$624	$568	$520	$498	$485	$453	$444	$440
9	*19*	*29*	*39*	*49*	*59*	*69*	*79*	*89*	*99*
954	773	679	619	572	538	514	493	476	470
8	*18*	*28*	*38*	*48*	*58*	*68*	*78*	*88*	*98*
1037	849	756	691	641	587	571	548	538	531
7	*17*	*27*	*37*	*47*	*57*	*67*	*77*	*87*	*97*
1127	933	835	781	719	663	644	624	614	612
6	*16*	*26*	*36*	*46*	*56*	*66*	*76*	*86*	*96*
1240	1032	918	875	809	748	734	714	704	702
5	*15*	*25*	*35*	*45*	*55*	*65*	*75*	*85*	*95*
1433	1137	1020	965	904	893	872	854	852	852
4	*14*	*24*	*34*	*44*	*54*	*64*	*74*	*84*	*94*
1618	1303	1167	1110	1033	1066	1044	1016	1008	1001
3	*13*	*23*	*33*	*43*	*53.*	*63*	*73*	*83*	*93*
1840	1538	1403	1370	1353	1345	1334	1318	1306	1302
2	*12*	*22*	*32*	*42*	*52*	*62*	*72*	*82*	*92*
2125	1838	1757	1701	1671	1664	1647	1625	1612	1604
1	*11*	*21*	*31*	*41*	*51*	*61*	*71*	*81*	*91*
2803	2693	2645	2619	2594	2579	2563	2536	2517	2506

Street Unit Value $250.

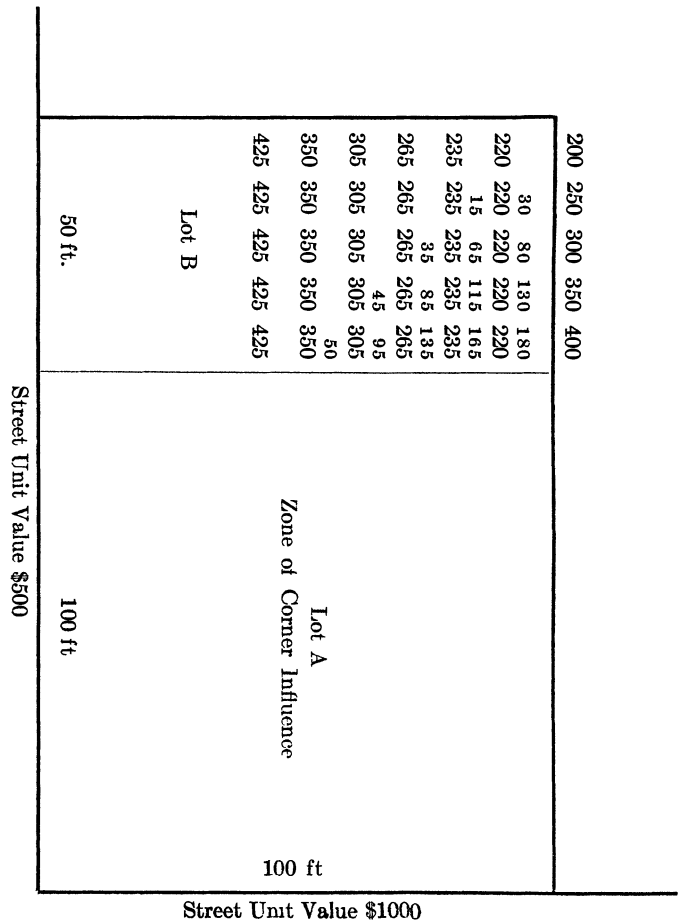
Corner

Street Unit Value $1000.

The heavy lines drawn on the lower left side of this diagram represent, for example, an irregular lot, with 93 feet on the better street, 40 feet on the side street and a minimum depth of 60 feet from the side street. The clerks are provided with blue prints of each city block, on which are given contours of every lot, regular or irregular. The fractional parts of the square are estimated by the clerk, who checks up his estimates by totalling the lots and parts of lots which fall within the large square, and comparing this total with the value of the latter, taken as a whole. The two totals must be the same. A lot situated to the right of the one outlined, and extending outside the area of corner influence, would be valued by using the curve of value for that part which lies outside the zone of corner influence and the corner squares for that part which is included within it.

(3) Overlap. — Frequently it happens, in case a street with a high unit value is intersected by one with a much lower unit value, that the value of the inside lots fronting on the side street must be increased because of the proximity of the higher valuation. The following illustration shows the method of calculating this overlap;

TABLE III



In this case, the use of the curve of value (as illustrated in Table I) would indicate that the squares in the eleventh tier, counting back from the better street, were worth $400 each, those in the twelfth tier $350 each, etc. But from the side street, the squares in the tenth tier would be worth only $220 each, those in the ninth tier $235 each, etc. In every case in which the value of a square would be greater from the better street than from the side street, enough must be added to the lesser valuation to make it equal to the greater. The total value of lot B is then found as follows: —

50 feet frontage, at $500 per foot	$25,000
Total overlap (sum of excess in all of the squares affected)	1,225
Total value of Lot B	$26,225

Similarly, if a lot were being valued from the better street, the $200 square would be subject to an overlap of $20, due to the greater influence at that point, of the unit value on the side street.

(4) The land occupied by an alley is valued at the same figure as the lots fronting on the streets to which the alley gives egress. The total value of the strip occupied by the alley is spread over the lots which abut on the alley, in proportion to the alley frontage of each. The argument for this is that the abutting lots have the advantage of light and accessibility given by the passageway and should properly be assessed with the value of the land so used.

(5) Buildings are valued separately, as is required by the Ohio law. The first step in this process is to take a census of all the buildings of every kind in the city. Forms have been prepared upon which a description of a building can be quickly entered by checking off the proper items in a long list, which covers such points as the kind of materials, the finish and equipment, dimensions, age, condition, rental, and the like, The forms are of four general types, appropriate for the description of the following classes of buildings: —

1. Single house; one side of double house; one of row; duplex.
2. Flats for . families; tenements; apartments.
3. Warehouse; factory; mill; foundry; garage; stable; shed.
4. Store building; office; hotel; theatre; bank; church; hall.

This grouping is elastic enough to include buildings not specifically mentioned. The total number of buildings counted and valued was 96,431.

The basis of building valuation is the square foot of superficial area. A schedule of values per square foot has been arranged for each of the four general types of structure above mentioned. In each schedule the gradations of height, of materials, of style and quality of construction, of finishing and plumbing, are taken account of, by a rising scale of values per square foot. An inspection of the field report on each building enables the appraiser to classify the structure properly, and to determine from the schedule the valuation per square foot.

This square foot valuation is subject to deductions according to the age and condition of the building. A scale of depreciation has been prepared to meet the building conditions in Cleveland.[1] The scale gives weight to the following factors: materials, whether wood or brick; condition of repair, whether good, fair, or bad. The deduction from the valuation per square foot on account of depreciation is tabulated for each year of age up to about sixty-five or seventy years, and for each of the above factors; also for each possible valuation per square foot by 10 cent intervals between $1.00 and $10.00 per square foot. The product of the present valuation per square foot and the superficial area of the house gives the present value of the structure. The results of this method have been very successfully checked by obtaining the estimates of real estate agents

[1] It was found that a scale of depreciation suitable for St Paul, Minn where most buildings are of recent construction, would not serve for Cleveland, where many old buildings are still in use and in good condition.

as to the value of the buildings on a certain street, and then determining their values independently by the rules as described. The two sets of valuations coincided so closely that the Board was much encouraged in the use of this method.

The real property of the railroads, which has hitherto been valued at much less than its true value, was assessed by the use of the unit system in the same way as other property. The unit value used was that given to the property adjoining the railroad real estate. In addition, for the purpose of determining the total valuation of the right of way, the railroads were weighted according to the density of traffic and the general importance of the particular road.

Vacant tracts in the outlying parts of the city were given a unit value per acre, which was again determined by community opinion.

Tho this scheme probably has some imperfections, it is undoubtedly the most scientific, elaborate, and systematic system of valuing real estate that has ever been used in the United States. There could be little objection to its theoretical basis, community opinion. Some doubt may exist as to the accuracy with which community opinion has been translated into actual values by the various tables and other devices of the present system. These must faithfully represent the best informed community opinion. Later and more extended researches may reveal necessary refinements and corrections of the calculations used at present. Until such improvements have been made, however, it will not be unprofitable to use the results thus far obtained for the valuation of real estate.

H. L. LUTZ.

OBERLIN COLLEGE.